CLAIMS

What is claimed is:

1. A method of recording data on an optical recording medium, the method comprising:

generating channel modulated digital data;

generating a recording waveform having an erase pattern containing a multi-pulse and a recording pattern in response to the channel modulated digital data; and

forming a first level of the channel modulated digital data as a mark and forming a second level of the channel modulated digital data as a space by using the generated recording waveform.

2. The method of claim 1, wherein the generating of the channel modulated digital data comprises:

performing a Run Length Limited (RLL)(2, 10) method.

3. The method of claim 1, wherein the generating of the channel modulated digital data comprises:

performing a Run Length Limited RLL(1, 7) method.

4. The method of claim 1, wherein the generating of the recording waveform comprises:

causing a power level of a leading pulse of the erase pattern to be a low level of the multi-pulse and a power level of a trailing pulse of the erase pulse to be a high level of the multi-pulse.

5. The method of claim 1, wherein the generating of the recording waveform comprises:

causing a power level of a leading pulse of the erase pattern to be a high level of the multi-pulse and a power level of a trailing pulse to be a high level of the multi-pulse.

6. The method of claim 1, wherein the generating of the recording waveform comprises:

causing a power level of a leading pulse of the erase pattern to be a low level of the multi-pulse and a power level of a trailing pulse to be a low level of the multi-pulse.

7. The method of claim 1, wherein the generating of the recording waveform comprises:

causing a power level of a leading pulse of the erase pattern to be a high level of the multi-pulse and a power level of a trailing pulse to be a low level of the multi-pulse.

8. The method of claim 1, wherein the generating of the recording waveform comprises:

causing a ratio of a duration time of a high level and another duration time of a low level of the multi-pulse to be substantially 1:1.

9. The method of claim 8, wherein the generating of the recording waveform comprises:

causing the duration time of the high level to be half a clock cycle.

10. The method of claim 8, wherein the generating of the recording waveform comprises:

causing the ratio of the duration time of the high level and the duration time of the low level of the multi-pulse to be m:n where m and n are integers.

11. The method of claim 1, wherein the generating of the channel modulated digital signal comprises:

forming a first level of an NRZI data signal as the mark and a second level of the NRZI data signal as the space.

12. The method of claim 11, wherein the generating of the recording waveform comprises:

forming a cooling pulse as a part of the erase pattern.

13. The method of claim 12, wherein the generating of the recording waveform comprises:

upon determining whether an ending time of the cooling pulse is less than or greater

than 0.5Ts from a trailing edge of the NRZI data signal, causing a duration time of a leading pulse forming the erase pattern to be over 0.5Ts.

14. The method of claim 13, wherein the generating of the recording waveform comprises:

forming a unit pulse of the multi-pulse to have a high level and a low level that are adjusted by the duration time of a leading pulse forming the recording pattern.

15. The method of claim 1, wherein the generating of the recording waveform comprises:

forming the recording pattern having at least two power levels.

16. A method of recording data on an information storage medium, the method comprising:

generating channel modulated digital data;

generating a recording waveform comprising a recording pattern, an erase pattern having a multi-pulse, and a cooling pulse concatenating the recording and erase patterns, in response to the channel modulated digital data; and

forming a first level of the channel modulated digital data as a mark and forming a second level of the channel modulated digital data as a space by using the generated recording waveform.